

REMARKS

This is a response to the Office Action dated November 2, 2004.

Claims 1, 12, 17 and 18 are amended. Claims 19-22 are cancelled. Claims 23-38 are new.

Claim 1 clarifies that the semiconductor film and the adjacent metal shunt form an interface located along adjacent side walls (see Applicant's Fig. 1, with semiconductor film 120 and metal shunt 110). Claim 12 clarifies that the semiconductor film and metal shunt are provided in a common plate structure (see Figure 1 and 2). Claim 17 is made dependent on claim 12. Claim 18 is amended for consistency with claim 1. New claims 23 and 24 provide details regarding the contacts for applying a current and for measuring a change in an induced voltage. See Figures 1 and 2, and the specification, paragraph 36. New claim 25 indicates that the semiconductor film comprises a mesa grown on the semi-insulating substrate (specification, paragraph 26). New claims 26 and 27 recite details regarding the filling factor, which was previously in claim 12 (specification, page 8, paragraph 41-44).

Claim 28 is based on original claims 1 and 7. Claim 29 is based on original claim 12. Claim 30 is based on original claim 1 and new claim 23. Claim 31 is based on new claim 24. Claim 32 is based on original claim 1 and new claim 25. Claim 33 is based on original claims 1 and 12. Claims 34 and 37 are based on claims 1 and 18, respectively, and the specification, e.g., paragraph 25, and refer to an inhomogeneous semiconductor film. Claims 35 and 38 specify that the strain causes an extraordinary piezoconductance. See the specification, e.g., paragraph 61. Claim 36 is based on claim 7.

Claims 1-18 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. patent 6,338,275 to Soares. Soares provides a Schottky-barrier semiconductor device in which a pair of metal contacts 110, 115 are formed on a semiconductor substrate 105. A Schottky barrier is formed at each interface 125 (col. 6, lines 23-27; Fig. 1). Strain which affects the interface 125 can be measured using conductive leads 208 and 210 and voltage measuring equipment 214 (Fig. 2, col. 7, lines 47-55).

In contrast, the present invention is concerned with a semiconductor film and a laterally adjacent metal shunt forming an interface located along adjacent side walls of the semiconductor film and the adjacent metal shunt (see Applicant's Fig. 1, with semiconductor film 120 and metal shunt 110). Thus, the two components are located end-to-end, not face to face.

Applicants therefore provide a completely different structure that is not disclosed or suggested by Soares. Withdrawal of the rejection to claim 1, and the analogous claim 18, is therefore respectfully requested.

Moreover, Applicants' dependent claims provide further patentable features.

For example, regarding claim 7, which recites that the semiconductor film comprises Indium Antimonide, the Examiner is respectfully requested to indicate where the cited reference discloses or suggests this feature.

Regarding claim 12, Soares fails to disclose or suggest a plate structure formed by a semiconductor film and metal shunt as claimed.

Regarding claim 17, Soares fails to disclose or suggest that heights of the semiconductor film and the metal shunt in the plate structure are substantially equal.

Regarding claim 23, Soares fails to disclose or suggest contacts arranged on a semiconductor film which is adjacent to a metal shunt as claimed, and instead uses metal contacts 212 and 213 on a semiconductor substrate 202 (Fig. 2, col. 7, lines 47-52), in which case there is no additional metal shunt as claimed.

Regarding claim 24, Soares fails to disclose or suggest contacts arranged on a side wall of a semiconductor film opposite to an interface as claimed. Instead, the contacts 212 and 213 are arranged on the top surface of a semiconductor substrate 202 (Fig. 2).

Regarding claim 25, Soares fails to disclose or suggest a semiconductor film comprising a mesa grown on a semi-insulating substrate as claimed.

Regarding claims 26 and 27, Soares fails to disclose or suggest a filling factor of approximately 9/16. As seen in Applicants' Figures 6 and 7, this filling factor is particularly advantageous.

Applicants' new independent claims 28-30, 32, 33, 34 and 37 are similarly patentably distinct over the cited references.

For example, regarding claims 34 and 37, Soares fails to disclose or suggest the use of an inhomogeneous semiconductor film as claimed. Instead, Soares only refers to using a homogeneous semiconductor substrate of Silicon (col. 11, lines 9-13). Regarding claim 36, Soares fails to disclose or suggest that the inhomogeneous semiconductor film comprises Indium Antimonide. Regarding dependent claims 35 and 38, Soares fails to disclose or suggest taking advantage of a hybrid semiconductor device in which a strain causes an extraordinary piezoconductance.

In view of the foregoing remarks, it is respectfully submitted that this application is in condition for immediate allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance be issued. If the Examiner believes that a telephone conference with the Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



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